

### **REMARKS/ARGUMENTS**

Original claims 1-26 have been canceled and replaced by new claims 29-53. Claims 27 and 28 were previously canceled.

The specification has been amended on page 6 as required by the Examiner.

The apparatus of the present invention is a single unit having two main assemblies. The first assembly is the upper portion which is in the form of a cylindrical cyclone housing having a swirl generator which is referred to as the hydrocyclone within the specification as originally lodged. The second part of the apparatus is the evaporator portion which comprises one or more evaporator tubes. The present invention is for the specific combination of the swirl generator and the evaporator. A feed stream having two components to be separated from each other are introduced into the apparatus of the present invention tangentially through an inlet which is located at the side of the first assembly. The feed stream is passed through the swirl generator and is discharged from the swirl generator into the evaporator portion of the apparatus. Thus, it is clear that the present invention is a novel combination of features. This has been acknowledged in the Office Action by indicating that WO 91/1 7804 does not provide the in-swirl motion or generator as claimed nor is the specific arrangement for creating the vortex of flow through the evaporator claimed. Thus WO 91/1 7804 does not disclose one of the two assemblies making up the present invention being the swirl generator.

On the other hand, Clarke 5,819,955 merely teaches a hydrocyclone but not in combination with a heat exchanger or heating medium so that the hydrocyclone could operate as an evaporator.

It is the combining of the swirl generator with the evaporator that results in the present invention. Prior to the present invention there are no instances of the use of a swirl generator and an evaporator in the one apparatus to separate at least two components in a waste material or other feed stream from each other.

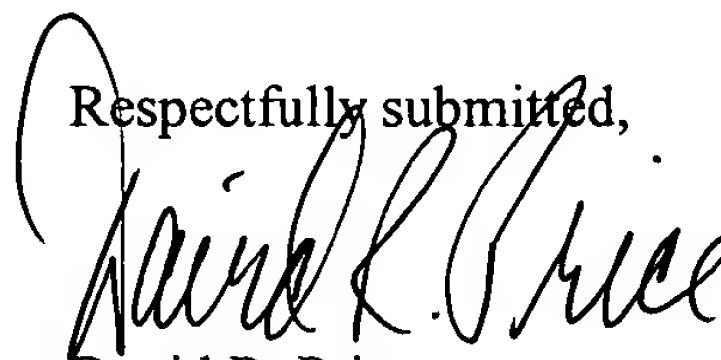
Furthermore, there is nothing in either of the references being relied upon to indicate to one skilled in the art that the swirl generator of Clarke could be combined with the evaporator of Kenton. There is no disclosure in Clarke that the swirl generator could be used to form a vapour to partially separate two different components of a feed material. The basis upon which the hydrocyclone separator of Clarke was used to separate components of a feed material was the difference in physical and chemical properties of the two components but does not include

separation based on vaporisation of one or both of the components. In Clarke, the sole basis for using the hydrocyclone to separate material is the difference in densities of the two components. Thus there is no disclosure in this reference of the different volatilities or different rates of vaporisation of the components being used to separate the components by using a hydrocyclone or similar device.

On the other hand, Kenton in the other reference discloses an invention which partly relates to a specially designed vacuum cyclone evaporator where liquids are separated by means of vaporisation and the vaporised fraction is subsequently condensed. Due to the internal design, the efficiency of the vacuum cyclone is greatly enhanced owing to the internal design of the vacuum cyclone which uses a number of parallel open cones to create an internal reflux effect. The internal reflux effect responsible for the increased efficiency of Kenton does not use a hydrocyclone or swirl generator or similar device for imparting a swirl motion to the feed stream. Nowhere in the disclosure of Kenton is there reference to guide the skilled artisan to use a swirl generator or to combine a swirl generator with an evaporator. The essence of operation of the evaporator of Kenton is to recirculate the various materials through the evaporator using reflux techniques. There is no suggestion that a swirl generator could be used to impart a swirling motion on the various streams of components. It is noted that a reflux recirculation is not the same as a swirling motion caused by a swirl generator.

In view of the foregoing, entry of the above amendment and allowance of claims 29-53 are respectfully requested.

Respectfully submitted,



David R. Price  
Reg. No. 31,557

Docket No.: 43153-9060  
Michael Best & Friedrich LLP  
100 East Wisconsin Avenue  
Milwaukee, Wisconsin 53202-4108

(414) 271-6560